Wet DC motor

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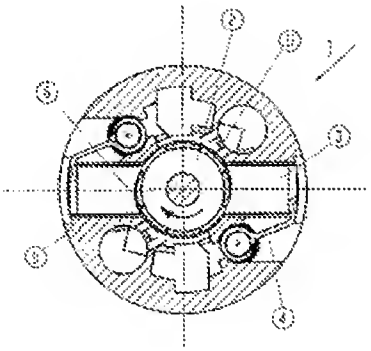
Abstract of **EP1111735**

A commutator (2) is made from carbons bars (5). Carbon brushes (3) have a brush running surface (6) corrugated in the direction of their rotation. The brush running surface has a radius mismatch. The carbon brushes are loaded against the commutator by springs (4).

Fig. 1



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[0001] The invention concerns a wet-current direct current motor for Brennstoffpumpen after the generic term of the requirement 1.

[0002] Such Brennstoffpumpen are needed for internal-combustion engines, which are inserted into vehicles.

[0003] It is admits (DE 25 31 483 A1) that with these Brennstoffpumpen a high brush wear occur can, that by turbulence, education of a liquid wedge or a cavitation between brush and commutator one causes.

[0004] It was therefore already suggested training the commutator bearing surface with a certain surface roughness so that the direct contact between brushes and commutator remains.

[0005] It showed up now however that these in such a way trained Brennstoffpumpen for Diesel promotion are suitable, in particular for bio Diesel promotion, since they do not fulfill the demands for life span of the vehicle manufacturers.

[0006] It is task of the invention to find measures with which a gattungsgemässer wet-current direct current motor for the employment for a diesel fuel pump is suitable.

[0007] This task is solved by the characteristics indicated in the characteristic of the requirement 1, favourable training further is indicated as the characteristics of the Unteransprüche.

[0008] A remark example of the invention is represented and is described in the following in the design.

[0009] This shows:

Fig. 1
a cross section of a direct current motor,
Fig. 2
a plan view and
Fig. 3 and 4
Side views of a carbon brush conductor.

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[0010] Fig. 1 shows a cross section by a wet-current direct current motor 1 for a Brennstoffpumpe for internal-combustion engines, with a commutator 2 and carbon brush conductors 3.

[0011] The carbon brush conductors 3 are loaded by in each case a feather/spring 4 against the commutator 2. The direct current motor 1 as well as a not represented pump are arranged and from fuel flowed through in a not represented housing.

[0012] It is now according to invention intended that the commutator 2 from coal lamellas 5 is formed and the carbon brush conductors 3 exhibit a brush bearing surface 6 grooved in direction of rotation.

[0013] By these measures a very favorable combination of material graphite lies - graphite forwards, by the corrugation 7 of the brush bearing surface 6 becomes the specific brushing jerk very highly. Thus a Aufschwimmen of the brushes 3 are prevented and reached an optimal current transmission. The corrugation 7 arranged in direction of rotation (arrow) causes a lubrication between the contacting surfaces of the commutator 2 and the carbon brush conductors 3, whereby if necessary. arising Bürstenfeuer is deleted.

[0014] It is particularly favourable, if the brush bearing surface 6 one exhibits arranged radius centre offset 8 against

the direction of rotation (arrow) (Fig. 3), whereby the carbon brush conductor 3 despite tilt within a Kohleführung 9 with full surface 6 against the commutator 2 can lie close.
The corrugation of the brush bearing surface 6 is reached by parallel arranged ribs 10 (Fig. 2), the one triangular cross-section area 11 (Fig. 4) exhibit, whose ends to point of the triangle 12 within the range of the brush bearing surface 6.

[0015] A special execution plans that the ribs 10 exhibit a distance 13 to each other from approximately 0.5 mm and a peak height of 11 of approximately 0.2 mm, whereby the radius centre offset 8 amounts to about 0.5 mm.

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1. Wet-current direct current motor for a Brennstoffpumpe for internal-combustion engines, with a commutator and carbon brush conductors, by the fact characterized that the commutator (2) from coal lamellas (5) is formed and exhibits the carbon brush conductors (3) a brush bearing surface (6), grooved in direction of rotation.

2. Direct current motor according to requirement 1, by the fact characterized that the brush bearing surface (6) exhibits a radius centre offset (8), directed against the direction of rotation.

3. Direct current motor according to requirement 2, by the fact characterized that the corrugation (7) of the brush bearing surface (6) is reached by parallel arranged ribs (10), which exhibit a triangular cross-section area (11), whose point of the triangle (12) within the range of the brush bearing surface (6) ends.

4. Direct current motor according to requirement 3, by the fact characterized that the ribs (10) exhibit a distance (13) to each other from approximately 0.5 mm and a peak height (11) of approximately 0.2 mm.

5. Direct current motor according to requirement 2, 3 or 4, by the fact characterized that the radius centre offset (8) amounts to about 0.5 mm.

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